REPORT TO THE MINISTER OF NATURAL RESOURCES AND ENERGY

By The Working Group
On Coal Mining And The
Grand Lake Generating Station

February 26, 2001

104-07317/

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Honourable Jeannot Volpé
Minister of Natural Resources and Energy
P.O. Box 6000
Fredericton, New Brunswick
E3B 5H1

Dear Minister:

Re: Working Group Report on Coal Mining and the Grand Lake Generating Station

The Working Group on New Brunswick coal mining and the Grand Lake Generating Station, established under your letter of October 3, 2000, is pleased to submit its report.

We would like to draw your attention to the recommendation which states that coal mining and the Grand Lake plant should continue to operate as long as it remains economic, which we believe is beyond 2004 and could be 2010, based on conditions known today.

We would like to thank officials of NB Coal Limited, and NB Power Corporation for their cooperation in providing much of the data which goes into this report.

Yours sincerely,

Eric Barnett

Eric Barnett

Murray Doherty

Don Barnett

Henry Bielecki

Andy Cormier

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1.0 INTRODUCTION:

On October 3, 2000, the Honourable Jeannot Volpé, Minister of Natural Resources and Energy, wrote to the Minto Regional Economic Development Corporation (MREDC) President, indicating the formation of a small working group to look into options concerning the viability of coal mining in the Grand Lake area and the future operation of the Grand Lake Generating Station.

Minister Volpé asked that Mr. Brian Glenn, President of MREDC chair the small working group but under a letter dated October 13, 2000, Mr. Glenn declined any participation on the working group. Consequently, Mr. Don Barnett, Assistant Deputy Minister, Natural Resources and Energy, took over the chairmanship in an acting capacity.

Membership of the Working Group included:

- Don Barnett: Assistant Deputy Minister – Natural Resources and Energy (Acting Chair)
- Andy Cormier: President – NB Coal Limited
- Eric Barnett: President – Local 7409 United Mine Workers Association
- Henry Bielecki: Retired former Grand Lake Generating Station Plant Manager
- Murray Doherty: Former Mayor of Chipman

The Committee was directed to produce a report by December 8, 2000 but later sought and was given an extension until February 28, 2001.

The following report forms a consensus report of the Working Group.

2.0 BACKGROUND:

The Minto-Chipman, Grand Lake Area of New Brunswick has had a long and proud history of coal mining that goes back to the 1640's. One of the first exports from New Brunswick to New England was the export of coal to Boston, Massachusetts in 1639.

Many generations of Minto and Chipman residents have spent their careers working in open casting mining operations and in earlier years, in underground operations. This industry has been the lifeblood of the region for over 300 years. NB Power's use of coal from the region began in 1932 and 18 to 19 million tons has been burnt over the last 67 years.

In 1969, private coal operations were consolidated into what is now NB Coal Limited, with the federal government spending about $20 million to phase out coal production. During the course of phasing out New Brunswick's coal mining, came the early 1970's Middle East unrest and the rapid run up in world oil prices. Security for oil supply also became a concern because of the vast reserves of conventional crude oil (50% of the world's supply) existing in the war torn Middle East. Coal became more competitive against oil and the direction to phase out coal was eliminated.

From 1980 to 1994, annual production levels of coal varied from 550,000 to 600,000 tons with most of it used for power generation by NB Power Corporation at Dalhousie and Grand Lake. Major investments in the purchase of two new draglines were made in 1979 (#8200 at a cost of $32 million) and in 1992 (#1260 at a cost of $18 million). However, at the same time, coal continued to be priced at about cost and not on a competitive basis with oil. Therefore, a revenue opportunity of about $300 million was lost, which could have been used to reduce NB Coal's fixed cost over the two draglines. This would have reduced coal costs in future years. Furthermore, there was none of the massive federal subsidies that went into support DEVCO in Cape Breton.

In 1986, NB Coal Limited ceased to be a stand-alone company and was folded into NB Power as a subsidiary. Thus, the NB Coal Board of Directors disappeared and operations were effectively run from NB Power's head office in Fredericton.

In 1994/95, NB Power switched from coal to orimulsion™ (a heavy bitumen) imported from Venezuela at the Dalhousie power plant and at about the same time the Belledune coal-fired power plant came into service using largely imported coal.

Coal production which had historically been at 550,000 – 600,000 tons per year, but had declined to 450,000 tons by 1994, was further reduced to 300,000 tons in 1994/95. In order to operate at this

lower tonnage, NB Coal Limited reduced to an 8-month/year operation at two draglines. Contract coal mining was eliminated in 1996.

Since 1996/97, NB Power has used coal at Belledune (135,000 tpa) and Grand Lake (165,000 tpa) generating stations. It is, however, fair to say that there has never been any support, in recent years, at the senior level at NB Power to continue to burn Grand Lake coal at Belledune. This continues today.

At a meeting held in Minto on July 24, 2000, NB Power announced that it would be reducing Grand Lake coal consumption from 250,000 to 160,000 tons per year with no coal going to Belledune. At the same time they announced that coal transportation contracts which terminated December 31, 2000, would not be renewed.

In making the decision to take no more Grand Lake coal to Belledune, NB Power argued that it would save them about $25 per ton when compared to imported coal ($68 versus $43). The savings were even higher at about $30.00 per ton when compared to petroleum coke, which they had been testing at Belledune.

In making the decision to reduce coal production to 160,000 tons per year, NB Power estimated a job loss of 28, which they believed would be handled through an early retirement package paid for out of the annual savings of about $1.8 million for 2.5 years (about $5 million in total), from not taking coal to Belledune.

Although not necessarily supportive of NB Power's decision to reduce coal production to 160,000 tons per year as a result of cessation of taking coal to Belledune, the Working Group used that as a starting point and considered options and issues surrounding continued coal mining in association with consumption at the Grand Lake No. 8 generating plant.

3.0 COAL MINING AND RESERVES:

For the purpose of this section, the report deals with the Grand Lake area and not with reserves at Lakestream or Beersville which are considered to be outside the scope of the Working Group's mandate. These other areas are believed to be unnecessary in examining options for continued mining in the Grand Lake area.

NB Coal's reserves at the Salmon Harbour Mine are estimated at about 1.9 million tons. The distribution of these reserves is shown on Figure 1 and Table 1.

The definition of a coal mine reserve is one that can be mined economically. In the case of Grand Lake reserves, they are fundamentally tied to their only market at the Grand Lake generating station. Table 2 shows projected production costs for the Salmon Harbour Mine. The increase for 2001 to 2004 are tied to consumer price index (CPI). The increase in 2005 is a result of having to move the transmission power line to move to area C, east extension Lakeside.

Continued mining operations at the Salmon Harbour Mine is contingent upon environmental approvals which currently operate under Certificate No. I-1544, class: 1 from the Department of Environment and Local Government. Mining operations also must follow the mine reclamation plan filed and approved by the Department of Natural Resources and Energy.

Clearly from the reserve estimates and subject to various government approvals, there is enough coal resources to continue mining for at least ten years at a production rate of 160,000 tons per year.

More recently the question of property damage from blasting has arisen as the mining plan gets closer to residences. This is handled by inspection and sometimes seismic velocity measurements before property settlement damage is paid.

TABLE 1

NB COAL LIMITED

SALMON HARBOUR MINE

PRODUCTION SCHEDULE: SALMON HARBOUR MINE

Schedule based on Coal Production of 160,000 tons per year
Main area West of Powerline
Operating an Average of 7 days/week – 200 days per year – 7 mos./year

Dragline:	2700 bcy/hr	Mechanical Availability	78%
Operating:	7 mo./yr.	Shift Availability	96%
	200 days/yr	Stats	8 days/yr
	24 hrs/day	Effective Working Hours	3,450
	7 days/wk	Operating Days	144
Fill Factor:	95%		

Deposit Area	Overburden bcy	Mining Years	Coal tons	Average Thickness inches	Average Depth ft	Area acres	Strip Ratio
Area 'A' Extension	8,482,894	2001	160,938	20.47	90.68	58.02	52.71
Area 'B'	31,986,244	2002-2005	523,102	18.9	96.82	204.8	61.15
East Extension Lakeside	25,102,000	2005-2007	426,771	20.08	99.24	156.74	58.82
	65,571,138		1,110,811	19.56	96.87	419.56	59.03
Salmon Harbour West Extension	44,994,840	2008-2012	838,155	22.43	100.75	276.82	56.68
Total Salmon Harbour Mine	110,565,978		1,948,966			696.38	

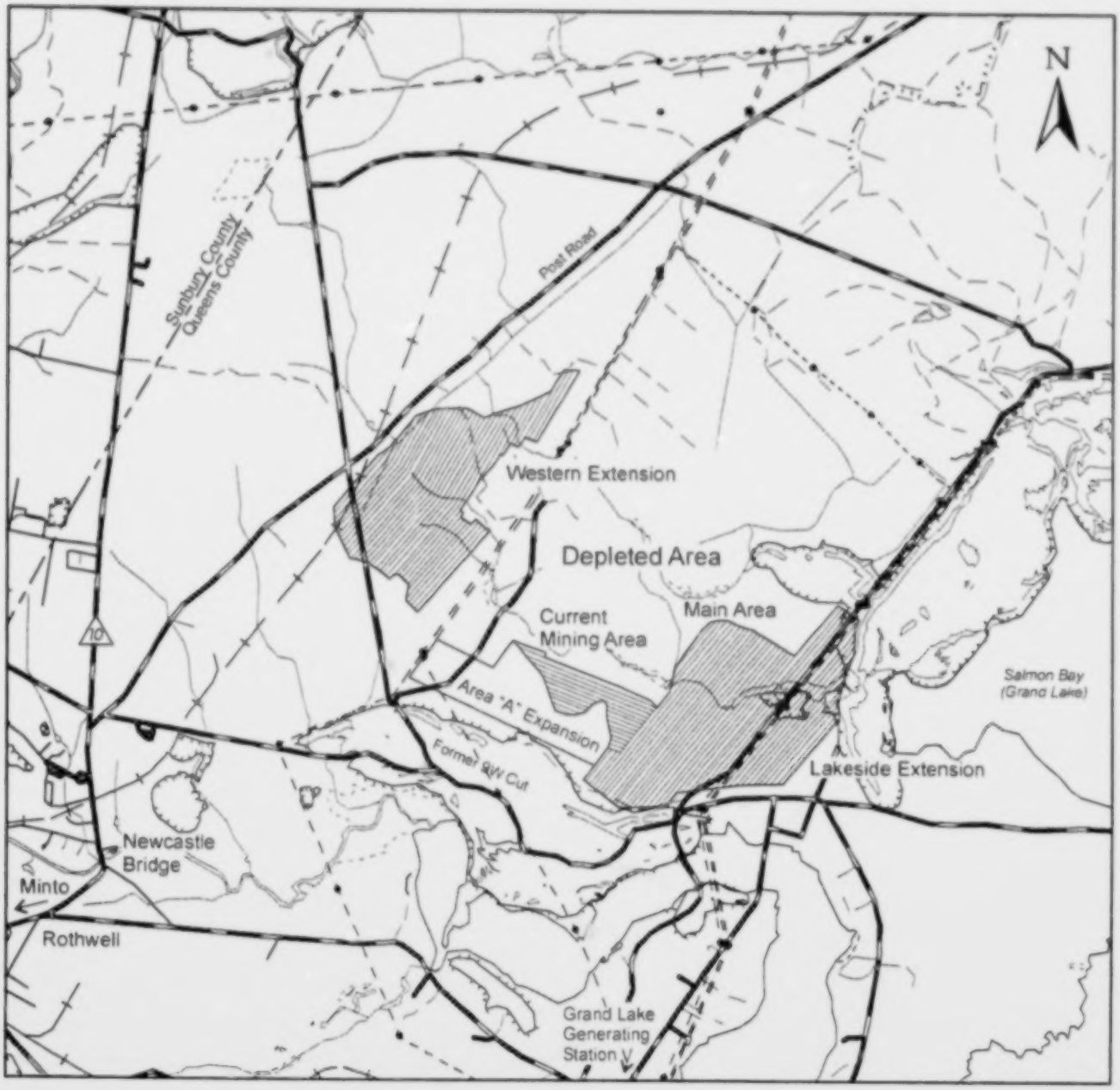

Figure 1: Salmon Harbour Mine

TABLE 2

PROJECTED COAL COSTS

NB Coal Limited

Schedule to calculate coal price components

	Budget 2001-2002	Budget 2003	Budget 2004	Budget 2005	Budget 2006	Budget 2007	Budget 2008	Budget 2009
Semi-variable component	6,420,955	6,536,842	6,654,815	7,389,430	7,635,863	7,773,618	7,913,852	8,056,611
Per ton	$40.13	$40.86	$41.59	$46.18	$47.72	$48.59	$49.46	$50.35
Variable component	1,671,844	1,701,178	1,731,040	1,761,440	1,792,387	1,823,891	1,855,961	1,888,610
Per ton	$10.45	$10.63	$10.82	$11.01	$11.20	$11.40	$11.60	$11.80
TONS	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Semi-Var Price/ton	$40.13	$40.86	$41.59	$46.18	$47.72	$48.59	$49.96	$50.35
Variable Price/ton	10.45	10.63	10.82	11.01	11.20	11.40	11.60	11.80
Subtotal	$50.58	$51.49	$52.41	$57.19	$58.92	$59.99	$61.06	$62.15

4.0 ENVIRONMENTAL ISSUES:

Aside from the environmental issues surrounding coal mining operations, the biggest issues surround atmospheric emissions associated with the Grand Lake plant.

Currently, the Grand Lake generating station has an approval to operate from the Department of Environment and Local Government until November 30, 2002 for air quality (Certificate No. I-1714). This approval is conditional on controlling particulate matter, fugitive emissions, monitoring and controlling SO_2 emissions and mercury testing.

A second approval to operate for water quality expires September 30, 2004 (Certificate No. I-2248). This approval includes monitoring and reporting from the ash lagoon including arsenic, cadmium, iron, mercury, suspended solids, oil, grease and acidity.

In terms of sulphur dioxide (SO_2) emissions, NB Power currently has an annual system wide cap of 123, 000 tons which it has and continues to meet. However, provincial emission reductions of 30% by 2005 and 50% by 2010 are planned.

Currently the highest total emissions from NB Power's plants come from Coleson Cove, about 50,000 tons in 1999 and Grand lake at about 20,000 tons in 1999. However, on a per megawatt hour (Mwh) basis the Grand Lake Plant is considerably higher than Coleson Cove. This arises from the 3% sulphur No. 6 fuel oil use at Coleson Cove compared to the 7 to 8% sulphur coal use at Grand Lake.

Recently, the Department of Environment and Local Government has been moving away from a system-wide cap for NB Power to a plant by plant cap. This is true for the Coleson Cove plant where there is a particular problem of SO_2 emissions in the Saint John airshed. Arguably this is not true in the Grand Lake airshed, although there can be local sulphate deposition.

Although SO_2 emissions from the Grand Lake plant are significant, they are small in comparison to the transboundary movement of SO_2 from the U.S. mid west (Ohio Valley coal burning plants).

A second atmospheric emission issue surrounding the Grand Lake plant is that of mercury, which is common with coal burning plants. Mercury is a neuro-toxin with particular impacts on children.

Testing of mercury emissions from the Grand Lake plant indicated results that would calculate out to about 97 kilograms based upon 160,000 tons of coal burned. This was almost double the amount originally calculated by NB Power. It should be added that similar testing is underway at Belledune but results are expected to be lower as a result of the scrubber.

Mercury emission reductions were the subject of discussion and a resolution at the recent meeting of the Eastern Canadian Premiers and New England Governors meeting and also Canada Wide Standards.

Greenhouse gases, the subject of the Kyoto protocol 6% reduction by Canada, are also higher from coal burning than other fossil fuels. However, only nuclear and hydro generation in NB Power's generation mix offer entire elimination of greenhouse gas emissions.

Other environmental issues surrounding the Grand Lake plant include the occasional plume appearance on start-up and local ash fallout. On the water side, there is an issue surrounding the operation of the lagoon with suspended solids and arsenic before 2004. Further discussion of this issue takes place under the Grand Lake plant section.

5.0 GRAND LAKE POWER GENERATING STATION:

The Grand Lake generating station is an older plant whose projected lifespan was 2004. This is based upon the industry average for thermal power plants which is 40 years and not necessarily linked to the condition of the actual plant.

At the request of the Working Group, NB Power Inspection and Predictive Maintenance under Generation Engineering were asked to consider what would be required to extend the plant life to 2010. Their conclusion was that considering its age, the Grand Lake No. 8 unit is in good operating condition. This is largely attributable to (a) an effective operating and maintenance program, and (b)

the fact that for most of its life, the unit had been operated as a base loader energy provided rather than cycled as a peak or intermediate power provider.

Despite this conclusion, it was concluded that an estimated $4.6 million of capital investment should be made to take the plant to 2010. Furthermore, life assessment which can only be assessed by extensive dismantling of major components for inspection, was estimated that there was a high probability that an additional $5.1 million would be required and a low or medium probability of an additional $8 million. Table 2 presents the projected capital requirements to take the plant to 2010. Not included in these figures is any capital cost associated with reductions in SO_2 and mercury emissions. A scrubber for the Grand Lake plant would be in the $30 to $40 million.

The report on the component life assessment by the Generation Engineering Group at NB Power is provided in a brief summary of the life assessment study of the major components of Grand Lake Generating Station Unit 8. The current retirement date is spring 2004. The purpose of the study was to establish what would be required to extend the life to 2010.

For operation to 2010, an investment of approximately $4.6 million will be required. Depending on the outcome of further life assessment, which will require extensive dismantling of major components for inspection, there is a high probability that $5.1 more million will be required and a low or medium probability for an additional $8 million. The total potential is $17.7 million. The most significant risk is associated with expending the initial $4.6 million, later establishing the need for additional major costs, then operating the unit with the potential for failure of a major component that could limit the ability to recover the investments. The following table summarizes the major costs associated with this risk.

TABLE 3

NEW BRUNSWICK POWER
GRAND LAKE GENERATING STATION UNIT NO. 8

Equipment Description	Required Expenditure	High Probability Expenditure	Low or Medium Probability Expenditure
Ash Lagoon and Effluent Control	1,800,000		
Boiler Tubes and Ash Pit	1,059,100		
Main Steam Pipe	120,000		700,000
Coal Handling Equipment	320,000		
Turbine LP Cylinder and HP Rotor	75,000	4,000,000	5,000,000
Inlet Valve Steam Chests	30,000	1,100,000	
Generator	200,000		2,000,000
In-stack SO_2 Monitor			300,000
Feedwater Heaters	400,000		
Miscellaneous	500,000		
TOTAL:	4,504,100	5,100,000	8,000,000

6.0 SOCIO ECONOMIC IMPACTS:

In recent years, there has been a decline in employment at NB Coal Limited associated with the reduction in coal production. Employment history is shown in Table 4.

TABLE 4

	1985	1990	1995	2000	2001
NB Coal:	209	163	135	101	73
Contractor:	64	35	33	0	0
Total:	273	198	168	101	73

Reduction in employment has been accomplished in cooperation with the United Mine Workers of America (UMWA), Local 7409, who have seen their membership reduced to 67 employees. There has also been a reduction in the number of hours of work with shift workers seeing their weekly earnings reduced by 15% on account of the reduced work hours. As such, the UMWA believes it

appropriate that NB Coal Limited should show good will in recognizing the contribution made by their unionized workforce and consider augmenting the present hourly wage rate even in advance of the current collective bargaining agreement expiration in March 2002.

In considering the socio-economic impact on the Minto-Chipman area, consideration must be given not only to the direct benefits through wages and purchases but also the indirect benefits.

In the mining sector, it is generally considered that there is a multiplier effect of one to one. For every job in the mining operation, there is another indirect one created through purchase of goods and services.

NB Coal Limited costs projected for the period 2001 to 2004 are given in Table 5 in Canadian dollars.

TABLE 5

($'s Canadian)

FISCAL YEARS ENDING:

	2001	2002	2003	2004
NB Coal:	10,737,319	10,137,237	9,830,182	9,968,278
Belledune truckers:	1,712,000	--	--	--
Local truckers:	307,840	332,800	332,800	332,800
Total:	12,757,159	10,470,037	10,162,982	10,301,078
Estimated Amount Retained in Community:	5,316,303	4,665,029	4,380,069	4,427,378
	(42%)	(45%)	(43%)	(43%)

The estimated amount retained in the community is based upon allowances for payroll taxes, vehicle repair, property taxes, hired services, etc.

Grand Lake Generating Station costs for fiscal period 2000/2001 are given in Table 6.

TABLE 6

	$	Amount Estimated to remain in Community	%
Payroll (Gross Labour and Benefits)	2,720,076	1,822,450	67%
Local Purchasing (Hired Services and Materials	1,390,950	556,380	40%
Other (Property Taxes & Fees, etc.)	318,446	159,223	50%
TOTAL:	4,429,472	2,538,053	

Employment at the Grand Lake Generating Station currently stands at 46.

Combined projected economic impacts of NB Coal mining and operating of the Grand Lake Generating Station are given in Table 7.

TABLE 7

	2001	2002	2003	2004
NB Coal	12,757,159	10,470,037	10,162,982	10,301,078
Grand Lake Plant*	4,429,472	4,429,472	4,429,472	4,429,472
TOTAL:	17,186,631	14,899,509	14,592,454	14,730,550

* Grand Lake budget for 2001 held constant for the four years.

Thus, operations at NB Coal Limited and the Grand Lake thermal generating station result in a combined total gross expenditure of about $17.2 million in 2000/01 falling to about $14.9 million in 2001/02 with the elimination of trucking to Belledune. Both operations also account for a combined direct employment of 119 people in 2001/02.

Thus, even with the reduction in coal production and a market only at the Grand Lake thermal generating station, there is a significant impact upon the local economy.

The latest Statistics Canada (1996) data available, shows about 2680 persons live in the area of Minto and Chipman. Adjusting for unemployment levels, assuming all persons between the ages of 20 to 64 are eligible for work, and using an average wage of $19,000, the impact of employment at both the Grand Lake plant and NB Coal Limited is about 15%.

The wage impact of 15% does not consider the issue of goods and services purchased, relative to the total for the region, as no data was available. However, on a wage comparison alone, the economic impact of power generation and coal mining is very significant.

7.0 ECONOMIC COMPARISON OF OPTIONS FOR CONTINUANCE OF COAL MINING BEYOND 2004:

The following tables give a comparison of costs at Grand Lake using several different scenarios including:

- Present day generating costs; (Table 8)
- Costs showing $5 million capital expenditure amortized over 4, 8 and 10 years; (Table 9)
- Costs showing $10 million capital expenditure amortized over 4, 8 and 10 years; and (Table 10)
- Costs showing coal price increases of $5 and $10 per ton and decrease of $5 per ton. (Table 11)

TABLE 8

Present Day Generating Costs at Grand Lake
Using Budget Data for Fiscal Year Ended March 31, 2001

Fuel Costs	Grand Lake
Variable and semi-variable production costs per ton	$46.38
Units consumed (tons)	165,000
Budgeted fuel consumption costs by NB Power	$7,652,700
Plant Costs	
OM&A : Direct plant OM&A	$4,429,532
Production in MWh	349,200
Production costs per MWh	
Fuel per MWh	$21.91
Direct OM&A per MWh	$12.68
Production cost per MWh	$34.59

TABLE 9

Capital Investment Alternatives ($5 million) at Grand Lake Plant
Using Forecast Prices and Costs For the Fiscal Year Ended March 31, 2005

	Before Investment Grand Lake - 2005	Effect of Investment of $5 Million, amortization over: 4 years	8 years	10 years
Fuel Costs				
Variable and semi-variable production costs per ton	$ 57.19	$ 57.19	$ 57.19	$ 57.19
Early Retirement, Insur. & Fire Road costs per ton	$ N/A	$ N/A	$ N/A	$ N/A
Unit consumption cost per ton or barrel in $Canadian	$ 57.19	$ 57.19	$ 57.19	$ 57.19
Units consumed in tons	160,000	160,001	160,001	160,001
Theoretical fuel consumption costs by NB Power	$ 9,150,400	$ 9,150,400	$ 9,150,400	$ 9,150,400
Plant Costs				
OM&A				
Estimate of direct plant OM&A	$ 4,309,631	$ 4,309,631	$ 4,309,631	$ 4,309,631
Production in MWh	344,000	344,000	344,000	344,000
Production cost per MWh				
Fuel per MWh	$ 26.60	$ 26.60	$ 26.60	$ 26.60
Direct OM&A per MWh	$ 12.53	$ 12.53	$ 12.53	$ 12.53
Production cost per MWh	$ 39.13	$ 39.13	$ 39.13	$ 39.13
Capital Costs				
Plant depreciation and debt service costs (new debt)	--	$ 1,471,142	$ 842,213	$ 716,832
Total Costs	$ 13,460,031	$ 14,941,173	$ 14,302,244	$ 14,176,863
Total Costs per MWh	$ 39.13	$ 43.43	$ 41.58	$ 41.21
Increase of x per MWh	$ --	$ 4.30	$ 2.45	$ 2.08

TABLE 10

Capital Investment Alternatives ($10 million) at Grand Lake Plant
Using Forecast Prices and Costs For the Fiscal Year Ended March 31, 2005

	Before Investment Grand Lake - 2005	Effect of Investment of $10 Million, amortization over: 4 years	8 years	10 years
Fuel Costs				
Variable and semi-variable production costs per ton	$ 57.19	$ 57.19	$ 57.19	$ 57.19
Early Retirement, Insur. & Fire Road costs per ton	$ N/A	$ N/A	$ N/A	$ N/A
Unit consumption cost per ton or barrel in $Canadian	$ 57.19	$ 57.19	$ 57.19	$ 57.19
Units consumed in tons	160,000	160,001	160,001	160,001
Theoretical fuel consumption costs by NB Power	$ 9,150,400	$ 9,150,400	$ 9,150,400	$ 9,150,400
Plant Costs				
OM&A				
Estimate of direct plant OM&A	$ 4,309,631	$ 4,309,631	$ 4,309,631	$ 4,309,631
Production in MWh	344,000	344,001	344,001	344,001
Production cost per MWh				
Fuel per MWh	$ 26.60	$ 26.60	$ 26.60	$ 26.60
Direct OM&A per MWh				
Production cost per MWh	$ 12.53	$ 12.53	$ 12.53	$ 12.53
	$ 39.13	$ 39.13	$ 39.13	$ 39.13
Capital Costs				
Plant depreciation and debt service costs (new debt)	--	$ 2,962,285	$ 1,684,425	$ 1,433,663
Total Costs	$ 13,460,031	$ 16,422,316	$ 15,144,456	$ 14,893,644
Total Costs per MWh	$ 39.13	$ 47.74	$ 44.02	$ 43.30
Increase of x per MWh	$ --	$ 8.61	$ 4.90	$ 4.17

TABLE 11

Sensitivity of Changes in Coal Production Costs
Using Forecast Prices and Costs For the Fiscal Year Ended March 31, 2005

	Using Status Quo Grand Lake - 2005	Effect of Increase (decreases) in $ per ton of: $5 Increase	$10 Increase	$5 Decrease
Fuel Costs				
Variable and semi-variable production costs per ton	$ 57.19	$ 62.19	$ 67.19	$ 52.19
Early Retirement, Insur. & Fire Road costs per ton	$ N/A	$ N/A	$ N/A	$ N/A
Unit consumption cost per ton or barrel in $Canadian	$ 57.19	$ 62.19	$ 67.19	$ 52.19
Units consumed in tons	160,000	160,000	160,000	160,00
Theoretical fuel consumption costs by NB Power	$ 9,150,400	$ 9,950,400	$ 10,750,400	$ 8,350,400
Plant Costs				
OM&A				
Estimate of direct plant OM&A	$ 4,309,631	$ 4,309,631	$ 4,309,631	$ 4,309,631
Production in MWh	344,000	344,001	344,001	344,001
Production cost per MWh				
Fuel per MWh	$ 26.60	$ 28.92	$ 31.25	$ 24.27
Direct OM&A per MWh	$ 12.53	$ 12.53	$ 12.53	$ 12.53
Production cost per MWh	$ 39.13	$ 41.35	$ 43.78	$ 36.80
Increase of x per MWh	--	$ 2.32	$ 4.65	$ (2.33)

Note: For this analysis the Working Group has not included early retirement insurance and Fire Road Costs in the cost of coal as these have to be incurred irrespective of Grand Lake going beyond 2004. At the same time in consideration of power plant depreciation the only considerations is for the new capital costs incurred in taking the plant beyond 2004.

The economic analysis shows that the cost of generating at the Grand Lake Plant is $34.59 per MWh (3.459 ¢/kwh) which is lower than Coleson Cove generation costs using $15 to $20 U.S. heavy fuel oil (3% sulphur). Were Coleson Cove generation forced to use 1% sulphur heavy fuel oil, then the price would increase by several more dollars, further advantaging the Grand Lake Plant.

The projected cost of generation at the Grand Lake Plant in 2005 is forecast to be $39.13 per MWh before any capital investment. When consideration is given to investing $5 million and $10 million capital in the Grand Lake Plant, the cost of generation increases to $43.43 per MWh for $5 million and to $47.74 per MWh for $10 million when each capital investment is amortized over 4 years.

When each capital investment is amortized over 10 years, the cost per MWh drops to $41.21 (for $5 million investment) and $43.30 (for $10 million investment).

ANALYSIS:

In comparing the costs of energy from the Grand Lake plant to other forms of generation in the NB Power system, it is too simplistic to just take any projected cost of replacement energy from purchases, say during a Point Lepreau two-year outage for refurbishment, as it does not recognize how the Grand Lake plant functions with the total generation system.

Therefore, it is simply not possible to take the average Grand Lake plant output and its costs and compare this to projected power purchase replacement costs during the Point Lepreau and Coleson Cove refurbishments. It is, however, possible to consider directionally, that there will be some economic advantage for continued Grand Lake plant operations during the time period 2006 to 2008, during any Point Lepreau refurbishment. The magnitude of any savings during the time period 2004 to 2010, will depend upon the costs of generation at Grand Lake, (including any capital requirements), and alternative supplies, including purchases.

In order to assess the economic benefits of continued Grand Lake operations beyond 2004, it is appropriate to consider the overall fuel savings within the NB Power system and relate these to ongoing operations and maintenance (O/M) costs at Grand Lake and the annual costs (depreciation and interest) associated with any capital expenditures required at the plant.

NB Power's projected fuel savings for the Grand Lake plant operating beyond March 31, 2004, are as follows:

Year	Fuel Savings ($ Millions)
2004/05	$5.6
2005/06	$6.4
2006/07	$7.6
2007/08	$6.7
2008/09	$6.0
2009/10	$4.6
Total:	$36.9

Such fuel savings to NB Power's operations, then must be compared to projected O/M and amortization of any capital, plus interest expenditures made to keep Grand Lake running to at least 2008 and possibly 2010. Such a comparison is shown in Table 12, which shows that $5 million capital investment depreciated over 6 years, results in a potential fuel savings to NB Power of about $5.7 million. If the capital investment were to be $10 million, then there is a small shortfall of about $1.0 million which is well within the margin of error of the analysis.

Based upon the foregoing analysis, it is reasonable to conclude that there is considerable economic merit in keeping the Grand Lake plant operational beyond 2004. Furthermore, it shows that the rhetoric that has surrounded the Grand Lake plant and NB Coal mining operations as being a negative influence on NB Power's financial performance, may no longer be accurate.

Should Point Lepreau not be refurbished but decommissioned and natural gas-fired replacement capacity built, then based upon today's natural gas prices, savings from continued operations at Grand Lake could be even greater.

TABLE 12

CAPITAL INVESTMENT AND INTEREST

Year	OM&A	$5 Million [Amortized over 6 Years] *	Annual OM&A + Capital Amortization	$10 Million [Amortized over 6 Years] *	Annual OM&A + Capital Amortization
2004/05	4.31	1.05	5.36	2.11	6.32
2005/06	4.31	1.05	5.36	2.11	6.32
2006/07	4.31	1.05	5.36	2.11	6.32
2007/08	4.31	1.05	5.36	2.11	6.32
2008/09	4.31	1.05	5.36	2.11	6.32
2009/10	4.31	1.05	5.36	2.11	6.32
	25.86	6.30	32.16	12.66	37.92

* Derived from Tables 9 and 10.

8.0 CONCLUSIONS:

There is no question that continued operations of coal mining in the Grand Lake area is dependent upon some capital investment, in the range of $5 to 10 million within the next several years being spent on the Grand Lake Generating Unit. There may also be some advantage to NB Power carrying out some remediation work ahead of 2004.

At the same time there is an opportunity for such expenditures to be substantially recovered during any Point Lepreau outage for 18 to 24 months during refurbishment and in the time period 2004 to 2010.

Should a decision be made not to refurbish Point Lepreau then alternative generating capacity using natural gas-fired capacity should still offer considerable savings based upon today's natural gas prices. Added to this is that there is an indigenous supply of local coal not subject to the vagaries of natural gas price fluctuations or unrest in Middle east countries affecting both supply and price of refined petroleum products. Also, should the nuclear unit be out of service longer than forecast, then again, Grand Lake benefits NB Power's system further. It becomes a question of risk assessment of the Grand Lake plant operating successfully for six years beyond March 31, 2004, as compared to other market and fuel risks, as well as other plant refurbishments within the NB Power generating system. The Working Group believes that there are lower, more controllable risks, on keeping the Grand Lake plant operational beyond 2004.

On the environmental front there is considerable challenge from acid gas, greenhouse gases and mercury emissions. In terms of sulphur dioxide emissions the Grand Lake plant is higher on a per MWh basis but operating the plant up to 2010 does not mean that NB Power cannot meet its emission targets on a system wide basis. Furthermore the Grand Lake area, although subject to sulphate dispositions, does not have the same air shed characteristics of the Saint John area where a point source cap is more appropriate.

In term of greenhouse gas emissions operating the Grand Lake plant beyond 2004, say to 2008 or 2010 does not mean that NB Power and the Province of New Brunswick cannot work towards the Kyoto target of 6% reduction by the 2008-2012 time frame. At present there is no in credit to the

province for early action. In reference to mercury emissions, this clearly is a very important issue but one which possibly needs further study and examination of total provincial emissions from all sources before any final decision is made.

The fundamental question for government and NB Power is can NB Coal Ltd., and the Grand Lake Generating plant operate effectively and economically without serious environmental degradation until such time as Point Lepreau is back in service (say 2008)?

9.0 RECOMMENDATIONS:

1. Whereas there remains the potential for considerable global volatility in fuel prices which affect NB Power's cost of generation and whereas comparing fuel cost savings of operating the Grand Lake plant beyond 2004 would appear to offset any capital cost of refurbishment at the facility, it is recommended that:

   "As long as the Grand Lake plant remains economic, including any capital investment, the Grand Lake generating plant should remain part of NB Power's generation assets and continue to generate beyond 2004 in conjunction with continued coal mining operations at NB Coal Limited.";

2. Whereas there are continued environmental challenges surrounding power generation and particularly the Grand Lake generating stations, but whereas environmental emission targets contemplated can be met within the period 2004 to 2010, it is recommended that:

   "The Grand Lake plant continue to be part of NB Power's system wide cap for SO_2 emissions.";

3. Whereas it is believed that the Grand lake plant can operate economically and environmental targets can be met, it is recommended that:

   "Government make it clear that the much talked about date of closure by 2004, is no longer firm and could be as much as 2010, but will relate to economics of cost of generation."; and

4. Whereas any decision to continue coal mining operations beyond 2004, must recognize that there is a finite resource of indigenous coal as well as the life of the Grand Lake plant, it is recommended that:

   "Government be proactive in diversifying the region's economy, including skills training and upgrading, to position the region for economic prosperity beyond the economic life of coal mining and Grand Lake plant operation and well into the future."

Minister
Natural Resources
and Energy

Ministre
Ressources naturelles
et Énergie

APPENDIX

New Nouveau Brunswick

October 3, 2000

Mr. Brian Glenn, President
Minto Regional Economic
Development Corporation
P.O. Box 280
Minto, New Brunswick
E0E 1J0

Dear Mr. Glenn:

Re: NB Coal Ltd.

In reference to your letter of July 6, 2000 and as a follow up to the meeting with Premier Lord and myself concerning coal mining in the Grand Lake area, I respond as follows.

I believe that it is appropriate to form a Working Group to look into options concerning the viability of coal mining and the Grand Lake Generating Station.

I would ask that you chair such a Working Group and that membership would include:

- Brian Glenn (Chairman): Minto Regional Economic Development Corporation.
- Eric Barnett: United Mine Workers Association.
- Henry Bieleci (Retired): Knowledgeable on the Grand Lake Generating Station.
- Murray Doherty (Chipman): Resident representing MLA, Mr. David Jordan.
- Andy Cormier: President – NB Coal Ltd.
- Don Barnett: Natural Resources and Energy.

Recognizing that there should be adequate time to complete a thorough examination of options, but also that there is a need to complete a review of options in an expeditious manner, I would ask that the Working Group present a report to my office on or before December 8, 2000.

.../2

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I am also asking that NB Power provide any and all information required by the Working Group in finalizing a report to my office.

In order for the Working Group to commence work immediately, I would ask that you contact Mr. Don Barnett at (506) 453-3862 to arrange an initial meeting.

Yours sincerely,

JEANNOT VOLPÉ

/av

cc: Jim Hankinson, President – NB Power
David Jordan, MLA – Grand Lake
Andy Cormier, President – NB Coal Ltd.